

Title (en)  
DIMENSIONAL CONSTRAINTS FOR THREE-DIMENSIONAL BATTERIES

Title (de)  
DIMENSIONALE EINSCHRÄNKUNGEN FÜR DREIDIMENSIONALE BATTERIEN

Title (fr)  
LIMITATIONS DIMENSIONNELLES DESTINÉES À DES BATTERIES TRIDIMENSIONNELLES

Publication  
**EP 3455898 A4 20191218 (EN)**

Application  
**EP 17796914 A 20170512**

Priority  
• US 201662335912 P 20160513  
• US 201662422958 P 20161116  
• US 2017032355 W 20170512

Abstract (en)  
[origin: WO2017197233A1] A secondary battery is provided for cycling between a charged and a discharged state, the secondary battery including a battery enclosure, an electrode assembly, carrier ions, a non-aqueous liquid electrolyte within the battery enclosure, and a set of electrode constraints. The set of electrode constraints includes a primary constraint system having first and second primary growth constraints and at least one primary connecting member, the first and second primary growth constraints separated from each other in the longitudinal direction, wherein the primary constraint array restrains growth of the electrode assembly in the longitudinal direction such that any increase in the Feret diameter of the electrode assembly in the longitudinal direction over 20 consecutive cycles of the secondary battery is less than 20%. The set of electrode constraints further includes a secondary constraint system having first and second secondary growth constraints connected by at least one secondary connecting member, wherein the secondary constraint system at least partially restrains growth of the electrode assembly in a second direction upon cycling of the secondary battery.

IPC 8 full level  
**H01M 10/058** (2010.01); **H01M 10/052** (2010.01); **H01M 10/0525** (2010.01); **H01M 10/054** (2010.01); **H01M 10/0585** (2010.01)

CPC (source: CN EP KR US)  
**H01M 4/02** (2013.01 - US); **H01M 10/02** (2013.01 - US); **H01M 10/04** (2013.01 - CN); **H01M 10/052** (2013.01 - CN EP KR US); **H01M 10/0525** (2013.01 - EP KR US); **H01M 10/054** (2013.01 - CN EP KR US); **H01M 10/058** (2013.01 - CN EP KR US); **H01M 10/0585** (2013.01 - CN EP KR US); **H01M 10/44** (2013.01 - US); **H01M 2004/021** (2013.01 - US); **Y02E 60/10** (2013.01 - EP KR); **Y02P 70/50** (2015.11 - EP)

Citation (search report)  
• [Y] US 2014050969 A1 20140220 - RUST III HARROLD JONES [US], et al  
• [Y] US 6083640 A 20000704 - LEE JIN-UK [KR], et al  
• [A] US 2011294015 A1 20111201 - PIRK TJALF [DE], et al  
• See also references of WO 2017197233A1

Cited by  
EP3542410A4; US11128020B2; US11264680B2; US11411253B2; US11495784B2; US11811047B2; US11355816B2; US11063299B2; US11901514B2; US11205803B2; US11211639B2; US11600864B2; US11239488B2; US11894512B2; US10749207B2; US11600848B2; US12009473B2; US11081718B2; US11444310B2; US11961952B2

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2017197233 A1 20171116**; CN 109478690 A 20190315; CN 109478690 B 20220823; CN 115425297 A 20221202; CN 115513533 A 20221223; EP 3455898 A1 20190320; EP 3455898 A4 20191218; EP 3455898 B1 20240626; JP 2019515472 A 20190606; JP 2022095885 A 20220628; JP 7059203 B2 20220425; JP 7422802 B2 20240126; KR 102391925 B1 20220428; KR 102554895 B1 20230712; KR 20180137027 A 20181226; KR 20220057649 A 20220509; KR 20230110655 A 20230724; SG 10202106068X A 20210729; SG 11201809308Q A 20181129; TW 201743496 A 20171216; TW 202213850 A 20220401; TW 202243315 A 20221101; TW I739830 B 20210921; TW I772156 B 20220721; TW I832314 B 20240211; US 10177400 B2 20190108; US 11081718 B2 20210803; US 11444310 B2 20220913; US 11961952 B2 20240416; US 2018166735 A1 20180614; US 2019319294 A1 20191017; US 2022158220 A1 20220519; US 2023178787 A1 20230608

DOCDB simple family (application)  
**US 2017032355 W 20170512**; CN 201780043543 A 20170512; CN 202211104944 A 20170512; CN 202211106221 A 20170512; EP 17796914 A 20170512; JP 2018559775 A 20170512; JP 2022066329 A 20220413; KR 20187035800 A 20170512; KR 20227013852 A 20170512; KR 20237023246 A 20170512; SG 10202106068X A 20170512; SG 11201809308Q A 20170512; TW 106115886 A 20170512; TW 110130806 A 20170512; TW 111125312 A 20170512; US 201815889338 A 20180206; US 201916241159 A 20190107; US 202117335725 A 20210601; US 202217903250 A 20220906